



Promoting Oral Health

Theme 7

INTRODUCTION

Oral health is critically important to the overall health and well-being of children and adolescents. It covers a range of health promotion and disease prevention concerns, including dental caries (tooth decay); periodontal health; proper development and alignment of facial bones, jaws, and teeth; oral diseases and conditions; and trauma or injury to the mouth and teeth. Oral health is an important and continuing health supervision issue for the health care professional.

Childhood caries (tooth decay) is a preventable and transmissible infectious disease, caused by bacteria (eg, *Streptococcus mutans* or *Streptococcus sobrinus*) that form plaque on the surface of teeth. The bacteria interact with sugar in foods and beverages, turning it into acids that dissolve tooth enamel, causing caries.

Caries is the most common chronic disease in children—5 times more common than asthma.¹ Left untreated, pain and infection caused by tooth decay can lead to problems in eating, speaking, and learning.¹ Forty percent of children have caries by the time they reach kindergarten,² and many school hours are lost each year due to dental problems related to caries.¹⁻³

Several population groups are particularly vulnerable to caries. For example, children

and youth with special health care needs are at increased risk. National surveys also have demonstrated that children in low-income and moderate-income households are more likely to have caries and more decayed or filled teeth than children who are from more affluent households. Even within income levels, children of color are more likely to have caries than white children.⁴ Thus, sociodemographic status should be viewed as an initial indicator of risk that can be offset by the absence of other risk indicators.

Health care professionals can teach children, adolescents, and their families about oral hygiene, healthy diet and feeding practices, optimal exposure to fluoride, and timely referral to a dentist. Health care professionals also often make the initial response for oral trauma. They should keep in mind that the differential diagnosis for oral trauma includes intentional injury.⁵



Bright Futures in Practice: Oral Health Pocket Guide (2004) provides a structured and comprehensive approach to this anticipatory guidance for the health care professional.⁶ The Health Resources and Services Administration's (HRSA's) National Maternal and Child Oral Health Resource Center (www.mchoralhealth.org) also provides many valuable tools and resources for health care professionals.⁷ Additional information is available at the American Academy of Pediatrics (AAP) Web site (www.aap.org).

The Importance of a Dental Home

The dental home is the "ongoing relationship between the dentist and the patient, inclusive of all aspects of oral health delivered in a comprehensive, continuously accessible coordinated and family-centered way."⁸

Box 1 describes the services that should be provided within a dental home.

The dental community (the American Dental Association, the Academy of General Dentistry, and the American Academy of Pediatric Dentistry [AAPD]) is united in encouraging families to establish a dental home by the time their child is 1 year old.⁹ Having a dental home is the ideal deterrence to the development of caries, from infancy through adolescence. Early preventive dental

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BOX 1 Dental Home

According to the American Academy of Pediatric Dentistry (AAPD), the dental home should provide the following:

- Comprehensive oral health care, including acute care and preventive services, in accordance with AAPD periodicity schedules.
- Comprehensive assessment for oral diseases and conditions.
- An individualized preventive dental health program based on a caries risk assessment and a periodontal disease risk assessment.
- Anticipatory guidance about growth and development issues (ie, teething, thumb or finger or pacifier habits).
- A plan for acute dental trauma.
- Information about proper care of the child's teeth and gingivae. This would include prevention, diagnosis, and treatment of disease of the supporting and surrounding tissues and the maintenance of health, function, and esthetics of those structures and tissues.
- Dietary counseling.
- Referrals to specialists when care cannot directly be provided within the dental home.
- Education regarding future referral to a dentist knowledgeable and comfortable with adult oral health issues for continuing oral health care; referral at an age determined by patient, parent, and pediatric dentist.

Adopted from: American Academy of Pediatric Dentistry. *Policy on the Dental Home*. American Academy of Pediatric Dentistry; revised 2004.⁹

visits have been shown to reduce dental disease and reduce costs. For example, Savage et al¹⁰ showed that dental costs for Medicaid-eligible children who began dental visits between the ages of 1 and 2 years were approximately 60% of the cost for children who began dental visits between the ages of 4 and 5 years.

As children and adolescents mature into adulthood, a dental home also can ensure that they receive oral health education/counseling, preventive and early intervention measures, and treatment, including treatment for periodontal care, orthodontic services, trauma, and other conditions.

Efforts to establish a dental home offer an opportunity for partnerships and foster a connection with the community. A partnership among health care professionals in primary care, dental health, public health, child care, and school settings can help ensure access to a dental home for each child during the early childhood, middle childhood, and adolescent years. (For more information on this topic, see the Promoting Community Relationships and Resources theme.)

Supplemental Fluoride

Fluoride plays a key role in preventing and controlling caries. Fluoride helps reduce loss of minerals from tooth enamel (demineralization) and promotes replacement of minerals (remineralization) in dental enamel that has been damaged by acids produced by bacteria in plaque. Regular and frequent exposure to small amounts of fluoride is the best way to protect the teeth against caries. This exposure can be readily accomplished through drinking water that has been optimally fluoridated and brushing with fluoride toothpaste twice daily.¹¹

Fluoride supplementation typically is not needed in the first 6 months of life. Beginning at the age of 6 months, children should drink fluoridated community drinking water or take prescribed supplements (ie,

drops or chewable tablets).¹¹⁻¹³ As an alternative to fluoride supplements, parents can purchase bottled water that contains fluoride.

Additional types of fluoride may be used as a primary preventive measure and, generally, are recommended for infants, children, and adolescents who are deemed to be at high risk of caries. Research has shown that the primary caries prevention effects of fluoride result from its topical contact with enamel and through its antibacterial actions. Therefore, topical agents (eg, concentrated fluoride gels, foams, and varnishes) may be used as a strategy for children who are deemed to be at elevated risk of tooth decay.^{11,14}

Even if indicated, additional fluoride should be used judiciously in children 6 years and younger to minimize the risk of fluorosis (ie, overexposure to fluoride).¹¹ Fluorosis can come from using too much toothpaste that contains fluoride, drinking water with higher than recommended fluoride levels, and taking fluoride supplements when other sources of fluoride are available.¹⁵ To prevent fluorosis, the primary water source(s) must be tested before parents are advised to supplement with fluoride.¹⁶

For adolescents, optimal fluoride levels in drinking water, combined with fluoride-containing preparations, such as toothpastes, gels, varnishes, and rinses, have significantly reduced dental decay, but caries risk remains high during this age period.^{17,18} Adolescents at high risk of caries should be evaluated for topical fluoride beyond that provided by water supply and a fluoridated toothpaste.

Children and Youth With Special Health Care Needs

Children with special health care needs (eg, infants at risk of enamel demineralization and hypoplasia because of poor mineralization or osteopenia, nutritional deficiencies, or medication usage) present a unique set of concerns for oral health because they are

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particularly prone to the development of caries. Because dental care for these children is often difficult and sometimes risky, the health care professional should refer the child to a dentist as early as possible for vigilant preventive dental care, which may alleviate the need for future surgical intervention.

Oral diseases also may have a direct and devastating impact on the general health of children with certain systemic or developmental problems or conditions. Children with compromised immunity or certain cardiac, kidney, or liver conditions may be especially vulnerable to the effects of oral diseases. Children with cognitive disabilities or developmental or neuromuscular conditions who do not have the ability to understand and assume responsibility for, or cooperate with, preventive oral health practices may be at higher risk for complications or systemic infections from oral diseases.¹⁹

Children and youth with special health care needs may require more help with their oral self-care routines (ie, brushing and flossing) than other children. Health care professionals should advise parents or caregivers to supervise and intervene as needed to help their children with brushing and flossing if their special needs prevent them from doing a thorough job. The child with special needs should begin dental care in the first year and visit the dentist every 6 months or more frequently as needed.

Adolescents with special health care needs may face difficulties because of their physical condition, malformations, medicines, or nutrition. They should receive regular dental care and be encouraged to take as much responsibility as possible for their own oral hygiene.

Promoting Oral Health: Infancy— Birth to 11 Months

Even though a child's teeth do not begin to appear until the middle of this developmental period, oral health is still a concern because of the potential that caries can develop during the first year of life.

Oral Hygiene and Feeding Practices That Promote Oral Health

Even before the baby's birth, parents and other caregivers should make sure their own mouths are as healthy as possible to reduce transmission of caries-causing harmful bacteria from their saliva to the newborn baby's mouth. Health care professionals should educate family members or caregivers in the following ways to prevent transmission of these bacteria from themselves to the infant:

- Practice good oral hygiene and seek dental care.
- Do not share utensils, cups, spoons, or toothbrushes with the infant.
- Do not clean a pacifier in their own mouths before giving it to the infant.
- Consult with an oral health professional about the use of xylitol gum (if the adult's oral health is a concern). This gum can have a positive impact on oral health by decreasing the bacterial load in an adult's mouth.²⁰

The primary teeth begin to erupt at different ages during the first year of life. An infant is susceptible to tooth decay as soon as her first teeth erupt if she has a sufficient bacterial load already present in her mouth and prolonged exposure to carbohydrates. Chalky white areas on the teeth are the first sign of dental decay. Both inadequate oral hygiene and inappropriate feeding practices that expose teeth to natural or refined sugars for prolonged periods contribute to the development of early childhood caries. Health care professionals should educate parents in the



following ways to keep teeth clean and remove plaque:

- Minimize exposure to natural or refined sugars in the infant's mouth.
 - Avoid frequent exposure to foods that can lead to early childhood caries.
 - Hold the infant while feeding. Never prop a bottle (ie, use pillows or any other object to hold a bottle in the infant's mouth).
 - Do not allow the infant to fall asleep with a bottle that contains milk, formula, juice, or other sweetened liquid.
 - Avoid dipping pacifiers in any sweetened liquid, sugars, or syrups.¹⁶
- Use a toothbrush twice daily as soon as teeth erupt. In children younger than 2 years, the teeth should be brushed with plain water twice a day (after breakfast and before bed),⁶ unless advised by a dentist to use fluoridated toothpaste based on a child's elevated dental caries risk.

To help prevent early childhood caries, parents also should take advantage of this developmental stage to establish lifelong nutritious eating patterns for the family that emphasize consumption of fruits, vegetables, whole grains, lean meats, and dairy products, and that minimize consumptions of foods and liquids high in sugars. (For more information on this topic, see the Promoting Healthy Nutrition theme.)

Oral Health Risk Assessment

In 2003, the AAP developed a policy statement, Oral Health Risk Assessment Timing and Establishment of the Dental Home, that recommended that primary care child health care professionals conduct an oral health risk assessment when a child is 6 months of age (Box 2).²¹ This assessment consists of asking parents about their, and the child's, oral hygiene and looking at the child's mouth to assess the risk of caries.

The AAP recognizes that, even today, some children live in communities that lack pediatric dentists or general dentists who are able to see infants and young children. Therefore, primary care child health care professionals who care for these children may have to continue to perform periodic oral health risk assessments even after the first 6 to 12 months of age. These assessments allow health care professionals to identify children at the highest risk of oral health problems so that they can be referred to whatever limited resources are available. Some child health care professionals also may provide enhanced oral health counseling or apply fluoride varnish to help with caries prevention in

BOX 2

Pediatric Oral Health Risk Assessment

Adopted from the AAP policy statement that states that all children should undergo an oral health risk assessment beginning at 6 months of age by a qualified pediatric health care professional:

“If an infant is assessed to be in one of the following risk groups, the care requirements could be significant and surgically invasive. Therefore, these infants should be referred to a dentist as early as 6 months of age and no later than 6 months after the first tooth erupts or 12 months of age (whichever comes first) for establishment of a dental home:

- Children with special health care needs
- Children of mothers with a high caries rates
- Children with demonstrable caries, plaque, demineralization, and/or staining
- Children who sleep with a bottle or breastfeed throughout the night
- Children in families of low socioeconomic status”

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high-risk children.^{22,23} In addition, public health professionals often assist health care professionals and families to link to a dental home.

Promoting Oral Health: Early Childhood—1 to 4 Years

The key oral health priorities of this developmental stage are the same as those of infancy, namely preventing caries and developing healthy oral hygiene habits. Early childhood also is a good time for parents, caregivers, and health care professionals to build positive dietary habits as they introduce new foods and the child establishes taste preferences. Parents may have questions during this period about pacifiers and thumb-sucking and finger-sucking behaviors that are related to teeth and jaw alignment.

Oral Hygiene, Fluoride, and Feeding Practices That Promote Oral Health

Parents and caregivers can do much to prevent the development of caries and promote overall oral health during this period. As noted earlier, caries is an infectious disease, and parents should make sure their oral hygiene and diet meet the standards outlined here. Health care professionals should educate the family and caregivers in the following ways to reduce transmission of bacteria from themselves to the child:

- Practice good oral hygiene and seek dental care.
- Do not share utensils, cups, spoons, or toothbrushes with the child.
- Do not put the child's pacifiers in their own mouths. Clean pacifiers with mild soap and water.
- Consult with their oral health care professional about the use of gum containing xylitol (if the adult's oral health is a concern).

Health care professionals also should educate parents about ways to keep their child's teeth clean and ensure sufficient fluoride intake.

- Brush the child's teeth twice daily as soon as teeth erupt. Because young children do not have the manual dexterity to properly clean their own teeth, an adult usually must brush the teeth of preschool-aged children. When parents feel their child is doing a thorough job, they should allow the child more independence and freedom.
 - For children younger than 2 years, brush the teeth with plain water twice a day (after breakfast and before bed) unless advised by a dentist to use fluoridated toothpaste based on a child's elevated dental caries risk.
 - For children 2 years and older, brush the teeth with no more than a pea-sized amount (small smear) of fluoride toothpaste twice a day (after breakfast and before bed). The child should spit out the toothpaste after brushing, but not rinse his mouth with water. The small amount of toothpaste that remains in his mouth helps prevent tooth decay.⁶ Children can be taught to floss if recommended by the dental professional.
- Make sure the child drinks fluoridated water or takes prescribed fluoride supplements.

Early childhood is a time in which children are exposed to new tastes, textures, and eating experiences. It is an important opportunity for parents and caregivers to firmly establish healthful eating patterns for the child and her family. These patterns should emphasize consumption of fruits, vegetables, whole grains, lean meats, and dairy products, and minimize consumptions of foods and liquids high in sugars. (For more information on this topic, see the Promoting Healthy Nutrition theme.)

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Oral Health Risk Assessment

The AAPD recommends that, after 12 months of age, a child should be seen by a dentist every 6 months or according to a schedule recommended by the dentist, based on the child's individual needs and susceptibility to disease.²⁴ The AAP notes that, in the absence of a dental home program that is able to see the 1- to 4-year-old child, the primary care child health care professional should continue to perform oral health risk assessments in the 1- to 4-year-old child.

The AAPD also recommends that health care professionals use the Caries-Risk Assessment Tool (CAT) beginning at age 1 year (Table 1) as part of the oral risk assessment.²⁵

Other Oral Health Issues

The health care professional should be prepared to discuss the use of pacifiers and finger sucking or thumb sucking. Finger sucking often fills an emotional need, but it can lead to malocclusion, including anterior open bite (top teeth do not overlap the bottom teeth) and excess overjet (top teeth protrude relative to the bottom teeth). The intensity, duration, and nature of the sucking habit can be used to predict the amount of harm that can occur. Positive reinforcement, including a reward system or reminder system, is the most effective way to discourage finger sucking.



Promoting Oral Health: Middle Childhood—5 to 10 Years

During the early part of middle childhood, a child loses his first tooth and the first permanent teeth (maxillary and mandibular incisors and first molars) start to erupt. By the end of middle childhood, most of the permanent teeth have erupted. For the child, these are exciting signs of getting older. Middle childhood also is a good time for parents and caregivers to reinforce oral hygiene, optimal fluoride exposure, and positive diet habits they pursued in early childhood.

The history and physical examination performed by the health care professional should include oral health. The child also should see the dentist every 6 months or according to a schedule recommended by the dentist, based on the child's individual needs and susceptibility to disease. When the permanent molars erupt, the child's dentist should evaluate his teeth to determine the need for sealants that protect the teeth from caries.

The key oral health issues for this developmental stage are preventing caries and gingivitis, and ensuring proper development of the mouth and jaw. Reducing the risk of injury or trauma to the mouth and teeth and avoiding risk behaviors that negatively affect oral health also are important.

Oral Hygiene, Fluoride, and Nutrition Practices That Promote Oral Health

Health care professionals should educate parents in the following ways to help their child keep his teeth clean and remove plaque:

- Helping with, and supervising, the brushing of their child's teeth at least twice a day and flossing if recommended by the dental professional.
- Using only a pea-sized amount of fluoridated toothpaste to clean the child's teeth. The child should spit out the toothpaste after brushing, but not rinse his mouth with water. The small amount

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TABLE 1

American Academy of Pediatric Dentistry Caries-Risk Assessment Tool (CAT)

Risk Factors to Consider	Risk Indicators		
	High	Moderate	Low
(For each item below, circle the most accurate response found to the right under "Risk Indicators")			
Part 1 – History (determined by interviewing the parent/primary caregiver)			
Child has special health care needs, especially any that impact motor coordination or cooperation ^A	Yes		No
Child has condition that impairs saliva (dry mouth) ^B	Yes		No
Child's use of dental home (frequency of routine dental visits)	None	Irregular	Regular
Child has decay	Yes		No
Time lapsed since child's last cavity	<12 months	12 to 24 months	>24 months
Child wears braces or orthodontic/oral appliances ^C	Yes		No
Child's parent and/or sibling(s) have decay	Yes		No
Socioeconomic status of child's parents ^D	Low	Mid-level	High
Daily between-meal exposures to sugars/cavity producing foods (includes on demand use of bottle/sippy cup containing liquid other than water; consumption of juice, carbonated beverages, or sports drinks; use of sweetened medications) ^E	>3	1 to 2	Mealtime only
Child's exposure to fluoride ^{F,G}	Does not use fluoridated toothpaste; drinking water is not fluoridated and is not taking fluoride supplements	Uses fluoridated toothpaste; usually does not drink fluoridated water and does not take fluoride supplements	Uses fluoridated toothpaste; drinks fluoridated water or takes fluoride supplements
Times per day that child's teeth/gums are brushed	<1	1	2-3
Part 2 – Clinical evaluation (determined by examining the child's mouth)			
Visible plaque (white, sticky buildup)	Present		Absent
Gingivitis (red, puffy gums) ^H	Present		Absent
Areas of enamel demineralization (chalky white-spots on teeth)	More than 1	1	None
Enamel defects, deep pits/fissures ^I	Present		Absent
Part 3 – Supplemental professional assessment (Optional) ^J			
Radiographic enamel caries	Present		Absent
Levels of mutans streptococci or lactobacilli	High	Moderate	Low

Each child's overall assessed risk for developing decay is based on the highest level of risk indicator circled above (ie, single risk indicator in any area of the "high risk" category classifies a child as being "high risk").

- A Children with special health care needs are those who have a physical, developmental, mental, sensory, behavioral, cognitive, or emotional impairment or limiting condition that requires medical management, health care intervention, and/or use of specialized services. The condition may be developmental or acquired and may cause limitations in performing daily self-maintenance activities or substantial limitations in a major life activity. Health care for special needs patients is beyond that considered routine and requires specialized knowledge, increased awareness and attention, and accommodation.
- B Alteration in salivary flow can be the result of congenital or acquired conditions, surgery, radiation, medication, or age-related changes in salivary function. Any condition, treatment, or process known or reported to alter saliva flow should be considered an indication of risk unless proven otherwise.
- C Orthodontic appliances include both fixed and removable appliances, space maintainers, and other devices that remain in the mouth continuously or for prolonged time intervals and which may trap food and plaque, prevent oral hygiene, compromise access of tooth surfaces to fluoride, or otherwise create an environment supporting caries initiation.
- D National surveys have demonstrated that children in low-income and moderate-income households are more likely to have caries and more decayed or filled primary teeth than children from more affluent households. Also, within income levels, minority children are more likely to have caries. Thus, socioeconomic status should be viewed as an initial indicator of risk that may be offset by the absence of other risk indicators.
- E Examples of sources of simple sugars include carbonated beverages, cookies, cake, candy, cereal, potato chips, French fries, corn chips, pretzels, breads, juices, and fruits. Clinicians using caries-risk assessment should investigate individual exposures to sugars known to be involved in caries initiation.
- F Optimal systemic and topical fluoride exposure is based on use of a fluoride dentifrice and American Dental Association/American Academy of Pediatrics guidelines for exposure from fluoride drinking water and/or supplementation.
- G Unsupervised use of toothpaste and at-home topical fluoride products are not recommended for children unable to expectorate predictably.
- H Although microbial organisms responsible for gingivitis may be different than those primarily implicated in caries, the presence of gingivitis is an indicator of poor or infrequent oral hygiene practices and has been associated with caries progression.
- I Tooth anatomy and hypoplastic defects (eg, poorly formed enamel, developmental pits) may predispose a child to develop caries.
- J Advanced technologies such as radiographic assessment and microbiologic testing are not essential for using this tool.

of toothpaste that remains in his mouth helps prevent tooth decay.⁶

- Make sure the child drinks fluoridated water or takes prescribed fluoride supplements.

As children begin school and expand their horizons beyond the immediate circle of home and family, they are increasingly exposed to eating habits and foods that put them at increased risk of caries. Media, especially television, likely play a role in this increasing risk. Studies of the content of television programming show that advertisements directed at children are heavily weighted toward foods that are high in sugar, such as sweetened breakfast cereals, soft drinks, snacks, and candy.²⁶⁻²⁸

Parents continue to have the most influence on their children's eating behaviors and attitudes toward food. To the extent possible, parents should make sure that nutritious foods are available to their children, and they

should continue to emphasize the healthful eating patterns and limitations of snacks that were established in infancy and early childhood. (For more information on this topic, see the Promoting Healthy Nutrition theme.)

Other Oral Health Issues

Finger or other sucking habits sometimes continue into middle childhood. These habits should be stopped when the permanent teeth begin to erupt. As the child begins to grow, the mouth grows, and the child should be evaluated by a dentist if malocclusion is seen.

Some children begin using tobacco during middle childhood. Therefore, the child should be encouraged not to smoke or use smokeless tobacco because it increases the risk of periodontal disease and oral cancer and poses substantial risks to overall health.

As children mature and begin to play with increased strength and vigor, both in free play

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and organized sports, the risk of injury to the mouth increases. The child and parent or caregiver should know what to do in the event of an emergency, especially if a tooth is visibly broken (chipped or fractured), displaced (luxated), or knocked completely out of the socket (avulsed). In these cases, the patient should be referred to a dentist immediately. An avulsed permanent tooth needs to be reimplanted as quickly as possible, but an avulsed primary tooth should not be reimplanted, because it likely would cause damage to developing permanent teeth.

Mouth guards worn during sports and other athletics greatly reduce the severity of accidental trauma to individual teeth by distributing the forces of impact to all of the teeth and jaws. Custom adaptations range from softening a generic plastic mouth guard in boiling water and biting into it to register a custom bite, to fabricating a guard on a custom mold. Both types work well to prevent oral trauma and differ only in cost and comfort. The protection afforded by any type of guard mandates use in both organized and leisure-time sports activity.

Promoting Oral Health: Adolescence—11 to 21 Years

Adolescence is characterized by the loss of the remaining primary teeth and complete eruption of all the permanent teeth, including the third molars or wisdom teeth in late adolescence. Growth spurts of the facial bones occur early and then taper off as adolescence progresses. The end result is a fully established bite.

Several oral health issues from earlier developmental stages continue to be important in adolescence. For example, vigilant oral hygiene and positive dietary habits can strengthen a sound foundation for adult oral health by preventing destructive periodontal disease and dental decay. Avoiding traumatic injury to the mouth is another continuing priority. Other issues are new. For example,

adolescence brings increased susceptibility to irreversible periodontal or gum disease that may be related to hormonal and immunologic changes. A comprehensive oral hygiene regimen of brushing and flossing, combined with regular professional care, can manage this response.

Oral Hygiene, Fluoride, and Nutrition Practices That Promote Oral Health

The adolescent should be responsible for her own preventive oral health care and should have an established dental home. She should see the dentist every 6 months or according to a schedule recommended by the dentist, based on individual needs and susceptibility to disease. The dental professional also may consider diet analysis, topical fluoride applications, antimicrobial regimens, and dental sealants for high-risk patients or those with significant dental disease.

Although preventive therapy has resulted in increased numbers of adolescents with healthy teeth, caries is still common in teens and growing evidence suggests that a small percentage of adolescents account for the most severe caries.^{4,17,18}

Adolescents' risk of caries may be increased by the following:

- Susceptible tooth surfaces as a result of immature enamel in newly erupted permanent teeth.
- Indifference to oral hygiene, which allows plaque to accumulate and mature.
- Frequent and unregulated exposure to high quantities of natural and refined sugars, a feature of many adolescent diets, which provides the perfect medium for caries to develop.^{29,30}
- Eating disorders, such as bulimia, which can result in a characteristic erosion of the dental enamel by repeated exposure of the teeth to gastric acids.

- Use of certain drugs, specifically methamphetamine, which has a detrimental effect on oral health. Methamphetamine abuse is associated with rampant decay that is attributed to some combination of the acidic nature of the drug, decreased saliva, tooth grinding and clenching, poor oral hygiene, and cravings for high-calorie beverages.³¹
- Frequent consumption of acidic drinks, which can directly erode the enamel.³²

Health care professionals should educate adolescents to keep their teeth clean and remove plaque by following a comprehensive, daily home care regimen, including a minimum of twice-daily brushing with fluoride toothpaste and once-daily flossing. It is recommended that the adolescent spit out the toothpaste but not rinse with water. This regimen should be customized to each patient based on risk factors. Adolescents also should follow nutritious eating patterns that include only modest consumption of

high-sugar foods (for more information on this topic, see the Promoting Healthy Nutrition theme) and should drink fluoridated water. If necessary, prescribed fluoride supplements until the age of 16 years are appropriate.³³

Other Oral Health Issues

Adolescence is a period of experimentation and making choices. Added freedom and extension of boundaries are characteristic of appropriate supervision, but certain behaviors can lead to oral health problems. Substance use, including tobacco and drugs, can affect soft and hard tissues of the oral cavity and is linked to oral cancer.³⁴ Oral piercing can cause local and systemic infection, tooth fracture, and hemorrhage. Sexual behaviors can lead to infectious and traumatic consequences to the mouth. The health care professional should continue to counsel the adolescent about these nondietary behavioral factors that affect oral health.

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PERIODONTAL CONDITIONS

Evidence suggests that irreversible tissue damage from periodontal disease begins in late adolescence and early adulthood. Early diagnosis, prevention, and minor treatment can, in most cases, prevent irreversible damage to the periodontal structures in adulthood.^{33,35} Preventing this damage obviates the need for dental restorations, which require lifelong care and monitoring.

TRAUMATIC INJURY TO THE MOUTH

Adolescents' risk of traumatic injury to the mouth may be increased by the following:

- High-risk behaviors that may involve trauma to the head and neck
- Driving crashes
- Injuries that occur as a result of participating in organized and leisure-time sports
- Unrecognized psychiatric and behavioral problems, such as bulimia or substance use
- Family or peer violence

Health care professionals should make sure that parents and adolescents know what to do and who to call if an injury occurs and a tooth is fractured or avulsed.

ORTHODONTIA

Genetically related abnormal development, premature primary tooth loss or extraction, or thumb sucking or finger sucking all can result in significant crowding and malalignment of the teeth, which can adversely affect oral health, function, and esthetics. Most orthodontic problems are not debilitating and can be resolved with appropriate treatment.³⁶ Preventing premature tooth loss early in life has a significant impact on minimizing space loss and the resultant crowding in adolescence.

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